Evaluating the Relationship between the Opioid Risk Tool and Opioid Prescribing Patterns in Acute Inpatient Rehabilitation

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Introduction

- **PM&R physicians prescribe opioids at one of the highest rates.**
- One method to curb the opioid epidemic is to identify patients at risk for opioid abuse and reduce opioid prescriptions in the acute inpatient rehabilitation setting.
- The Opioid Risk Tool (ORT) evaluates risk of future aberrant opioid behavior, however, its use among adult patients in acute inpatient rehabilitation has not been previously studied.

Objectives

- Characterize patients at an acute inpatient rehabilitation hospital using the ORT questionnaire.
- Examine the relationships between the ORT risk groups and prescribed morphine milligram equivalents (MME) on admission and discharge.

Study Design

- Retrospective chart review of 532 patient encounters at a free-standing inpatient rehabilitation hospital.
- Adult patient that completed their rehabilitation stay without transfer and had the ORT completed at admission were analyzed.
- Data collected included: age, gender, primary rehabilitation diagnosis, ORT score, and total MME on admission and discharge.
- MME was calculated based on Center for Disease Control (CDC) guidelines.

ORT Questionnaire

	Female	Male
Family history of substance abuse		
Alcohol	(1)	(3)
Illegal drugs	(2)	(3)
Rx drugs	(4)	(4)
Personal history of substance abuse		
Alcohol	(3)	(3)
Illegal drugs	(4)	(4)
Rx drugs	(5)	(5)
Age between 16-45	(1)	(1)
History of preadolescent sexual abuse	(3)	(0)
Psychological disease		
ADD, OCD, bipolar, schizophrenia	(2)	(2)
Depression	(1)	(1)
Score total		

Low Risk ≤ 3, Moderate Risk 4-7, High Risk ≥ 8

Results

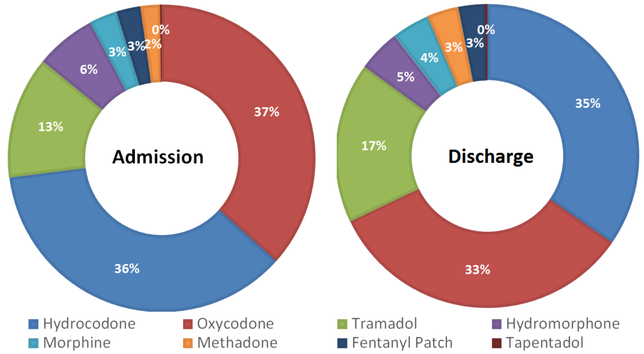
Demographics

		# of Patients	Low Risk	Moderate Risk	High Risk
Gender	Female	222 (42%)	193 (87%)	17 (8%)	12 (5%)
	Male	310 (58%)	232 (75%)	58 (19%)	20 (6%)
Major Diagnosis	Spinal Cord Injury	151 (28%)	111 (74%)	26 (17%)	14 (9%)
	Debility	113 (21%)	98 (87%)	12 (11%)	3 (3%)
	Orthopedic	96 (18%)	85 (89%)	8 (8%)	3 (3%)
	Brain Injury	53 (10%)	38 (72%)	10 (19%)	5 (9%)
	Amputee	38 (7%)	29 (76%)	6 (16%)	3 (8%)
	Stroke	38 (7%)	28 (74%)	8 (21%)	2 (5%)
	Neurologic	21 (4%)	18 (86%)	2 (10%)	1 (5%)
	Cancer	17 (3%)	14 (82%)	2 (12%)	1 (6%)
	Burn	5 (1%)	4 (80%)	1 (20%)	0 (0%)

ORT Stratification and MME change

ORT Risk Group	**Low**		**Moderate**		**High**	
# of patients	**425 (80%)**		**75 (14%)**		**32 (6%)**	
	ADM	**DISCH**	**ADM**	**DISCH**	**ADM**	**DISCH**
Mean MME	64.3	37.4	79.7	44.0	194.0	192.8
Median MME	45	20	50	15	60	30
Δ MME between ADM and DISCH	p<0.0001		p<0.0001		p<0.002	
Est (95% CI)	25.0 (22.5-29)		32.5 (22.5-41)		18.5 (10-35)	
Δ MME between ORT risk groups	p=0.17					

Prescribed Opiates on Admission and Discharge



Discussion and Conclusions

- While there was no significant difference in the decrease in MME between ORT risk groups, there was a significant decrease in MME within each group during the inpatient stay.
- **Despite ORT risk stratification for future aberrant use, patients appear to have similar potential for weaning opioids during their inpatient rehabilitation stay.**
- The ORT can be used by clinicians to create awareness and assess for potential opioid risk after discharge from acute inpatient rehabilitation.

Future Directions

- The next step will be to assess whether implementation and awareness of the ORT is associated with greater opioid wean during the inpatient stay.
- Perform subgroup analysis to determine differences between groups in risk assessment and MME changes.

References

1. Scholl, Lawrence, et al. "Drug and opioid-involved overdose deaths—United States, 2013–2017." Morbidity and Mortality Weekly Report 67.5152 (2019): 1419.
2. Levy, Benjamin, et al. "Trends in opioid analgesic–prescribing rates by specialty, US, 2007–2012." American journal of preventive medicine 49.3 (2015): 409-413.
3. Webster, Lynn R., and Rebecca M. Webster. "Predicting aberrant behaviors in opioid-treated patients: preliminary validation of the Opioid Risk Tool." Pain medicine 6.6 (2005): 432-442.
4. Clark, Meredith R., Robert W. Hurley, and Meredith CB Adams. "Re-assessing the validity of the Opioid Risk Tool in a tertiary academic pain management center population." Pain Medicine 19.7 (2018): 1382-1395.
5. Ma, Joseph D., et al. "A single-center, retrospective analysis evaluating the utilization of the opioid risk tool in opioid-treated cancer patients." Journal of pain & palliative care pharmacotherapy 28.1 (2014): 4-9.

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